

Preliminary Amendment

Applicant: Peter M.J. Mulier et al.

Serial No.: 10/014,388

Filing Date: October 22, 2001

Docket No.: P-8163.01 Cont 1 (M190.105.101)

Title: HELICAL NEEDLE APPARATUS FOR CREATING A VIRTUAL ELECTRODE USED FOR THE ABLATION OF TISSUE

REMARKS

Applicants have cancelled original claims 1-20, which were prosecuted and allowed in the parent case, and added new claims 21-29. Support for the new claims may be found throughout the specification, including the figures. To the extent it may be necessary, support for combining various features from several embodiments may be found, for example, at p. 12, l. 27-28.

More particularly, support for a coil may be found throughout the specification, for example, at reference character 36. Support for a first helical coil and a second helical coil may be found, for example, in FIG. 8. Support for the coils wound parallel to one another may also be found, for example, in FIG. 8 as well as at p. 10, l. 8. Support for electrodes may be found, for example, at p. 10, l. 7 and p. 14, l. 6.

Support for at least one conductive fluid delivery opening for delivering a conductive fluid to tissue may be found, for example, at p.13, l. 15-26. Support for a plurality of conductive fluid delivery opening for delivering a conductive fluid to tissue located along the length of the coils may be found, for example, in FIG. 12 as well as at p.13, l. 15-26. Support for the conductive fluid delivery opening comprising a hole or a slit may be found, for example, in FIGS. 12-14 as well as at p.13, l. 15-26.

Support for the application of electric current to the tissue through the conductive fluid may be found, for example, at p. 9, l. 26.

Support for a fluid path providing the conductive fluid from a fluid source to the conductive fluid delivery opening may be found, for example, at p. 12, l. 11-12. Support for the fluid delivery opening further comprising an electrode opening may be found, for example, in FIGS. 12-14 and at p. 10, l. 7.

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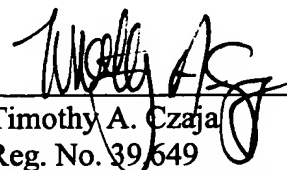
Support for the first coil provided by a first needle and the second coil provided by a second needle may be found, for example, at p. 12, l. 8. Support for the needles being hollow may be found, for example, at p. 12, l. 9.

Respectfully submitted,

Peter M.J. Mulier et al.,

By their attorneys,

Dated: February 15, 2002
TAC:jmc



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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C., 20231 on this 15th day of February, 2002.

By


Name: Timothy A. Czaja

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter M.J. Mulier et al.

Examiner: Unknown

Serial No.: 10/014,388

Group Art Unit: Unknown

Filed: October 22, 2001

Docket No.: P-8163.01 Cont. 1 (M190.105.102)

Title: **HELICAL NEEDLE APPARATUS FOR CREATING A VIRTUAL ELECTRODE USED FOR THE ABLATION OF TISSUE**

Assistant Commissioner for Patents
Washington, D.C. 20231

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**VERSION WITH MARKINGS
TO SHOW CHANGES MADE**

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified application as follows:

IN THE CLAIMS

Please cancel claims 1-20 and add newly presented claims 21-30 as follows:

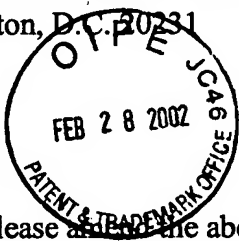
1.(Cancelled) ~~A surgical apparatus for delivering conductive fluid to a target site for subsequent formation of a virtual electrode to ablate bodily tissue at the target site by applying a current to the delivered conductive fluid, the apparatus comprising:~~

~~an elongated device forming a helical needle assembly including a first helical needle configured to engage bodily tissue, the first helical needle being hollow for delivering conductive fluid from a fluid source and forming a needle tip.~~

2.(Cancelled) ~~The surgical apparatus of claim 1, wherein the first helical needle forms an electrode.~~

3.(Cancelled) ~~The surgical apparatus of claim 1, wherein the first helical needle includes a plurality of adjacent coils, and further wherein a pitch between each of the plurality of adjacent coils is variable.~~

4.(Cancelled) ~~The surgical apparatus of claim 3, wherein the pitch decreases proximally along at least a portion of the length of the first helical needle.~~



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~~5.(Cancelled) The surgical apparatus of claim 1, wherein the first helical needle includes a plurality of adjacent coils defining an outer diameter, and further wherein the outer diameter is variable along at least a portion of a length of the first helical needle.~~

~~6.(Cancelled) The surgical apparatus of claim 5, wherein the outer diameter decreases proximally from the needle tip.~~

~~7.(Cancelled) The surgical apparatus of claim 5, wherein the outer diameter increases proximally from the needle tip.~~

~~8.(Cancelled) The surgical apparatus of claim 5, wherein the first helical needle includes a proximal portion, a central portion and a distal portion, and further wherein the outer diameter decreases from the central portion to the proximal portion and the distal portion.~~

~~9.(Cancelled) The surgical apparatus of claim 5, wherein the first helical needle includes a proximal portion, a central portion and a distal portion, and further wherein the outer diameter increases from the central portion to the proximal portion and the distal portion.~~

~~10.(Cancelled) The surgical apparatus of claim 1, wherein the helical needle assembly further includes:~~

~~a second helical needle concentrically arranged with the first helical needle, the second helical needle having an outer diameter less than an inner diameter defined by the first helical needle.~~

~~11.(Cancelled) The surgical apparatus of claim 1, wherein the helical needle assembly further includes:~~

~~a second helical needle wound parallel with the first helical needle.~~

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~~12.(Cancelled)The surgical apparatus of claim 1, wherein the helical needle assembly further includes:~~

~~—— a second helical needle concentrically disposed within the first helical needle.~~

~~13.(Cancelled)The surgical apparatus of claim 1, wherein the first helical needle includes:~~

~~—— a central shaft, the shaft being hollow for delivering conductive fluid; and~~

~~—— a helical flight extending from an outer circumference of the central shaft.~~

~~14.(Cancelled)The surgical apparatus of claim 1, wherein the first helical needle includes:~~

~~—— a substantially straight tube, the tube being hollow for delivering conductive fluid;~~

~~—— a disc extending radially from the tube; and~~

~~a plurality of starter threads extending from the disc spaced from the tube, the plurality of starter threads defining a helical pattern.~~

~~15.(Cancelled)The surgical apparatus of claim 1, wherein the first helical needle forms openings along at least a portion of an outer diameter for delivering conductive fluid.~~

~~16.(Cancelled)The surgical apparatus of claim 1, wherein the first helical needle forms a continuous slit along an outer diameter for delivering conductive fluid.~~

~~17.(Cancelled)The surgical apparatus of claim 1, wherein the first helical needle forms a continuous slit along an inner diameter for delivering conductive fluid.~~

~~18.(Cancelled)A surgical system for creating a virtual electrode to ablate bodily tissue, the system comprising:~~

~~—— a fluid source maintaining a supply of conductive fluid;~~

~~—— a current source for selectively supplying a current; and~~

~~—— a surgical instrument including:~~

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~~an elongated device for forming a helical needle configured to engage bodily tissue, the helical needle being hollow and fluidly connected to the fluid source for delivering the conductive fluid and terminating in a needle tip; an electrode associated with the helical needle, the electrode being connected to the current source for applying a current to conductive fluid delivered from the helical needle to create a virtual electrode.~~

19.(Cancelled)~~The surgical system of claim 18, wherein the helical needle includes a plurality of adjacent coils, and further wherein a pitch between each of the plurality of adjacent coils is variable.~~

20.(Cancelled)~~The surgical system of claim 18, wherein the helical needle forms openings along at least a portion of an outer diameter of the first helical needle for delivering conductive fluid.~~

21.(Newly Presented) A surgical apparatus comprising:

a first coil and a second coil;

the first coil further comprising a first helical coil and the second coil further comprising a second helical coil, the first helical coil and the second helical coil wound parallel to one another;

at least one conductive fluid delivery opening configured for delivering a conductive fluid to tissue; and

the first helical coil serving as a first electrode and the second helical coil serving as a second electrode; the first electrode and the second electrode configured to apply electric current to the tissue through the conductive fluid.

22.(Newly Presented) The surgical apparatus according to claim 21, further comprising a plurality of conductive fluid delivery openings configured for delivering the conductive fluid to tissue.

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23.(Newly Presented) The surgical apparatus according to claim 22, wherein the plurality of conductive fluid delivery openings are located along the length of the first coil and along the length of the second coil.

24.(Newly Presented) The surgical apparatus according to claim 21, wherein the conductive fluid delivery opening comprises a hole.

25.(Newly Presented) The surgical apparatus according to claim 21, wherein the conductive fluid delivery opening comprises a slit.

26.(Newly Presented) The surgical apparatus according to claim 21, wherein at least one of the first helical coil and the second helical coil provides a fluid path therein.

27.(Newly Presented) The surgical apparatus according to claim 26, wherein the fluid path provides the conductive fluid from a fluid source to the conductive fluid delivery opening.

28.(Newly Presented) The surgical apparatus according to claim 21, wherein the conductive fluid delivery opening further comprises an electrode opening.

29.(Newly Presented) The surgical apparatus according to claim 21, wherein the first coil is provided by a first needle and the second coil is provided by a second needle.

30.(Newly Presented) The surgical apparatus according to claim 21, wherein the first needle is hollow and the second needle is hollow.

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Dated: _____
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By _____
Name: Timothy A. Czaja